Wenjie Hu

CONTACT INFORMATION

Microsoft Building 84/3349
Redmond, WA

Telephone: (814)-954-2868
Email: wenhu@microsoft.com

EDUCATION

The Pennsylvania State University — University Park, PA
Ph.D in Computer Science and Engineering — 2016

Tsinghua University — Beijing, China
M.S. in Computer Science and Technology — 2010

Tongji University — Shanghai, China
B.E. in Computer Science and Technology — 2007

WORKING EXPERIENCE

Microsoft Corp.
MKG (Microsoft Knowledge and Growth) Data Sciences Team

- **Classification/Ranking**
  Deployed a *Fast Tree* classification model to predict whether a potential customer will buy Microsoft products in next two months.
  Conducted calibration to provide a meaningful score to the inside sellers, i.e., for 100 customers with score 80, around 80 will be converted after two months.
  Got a lift of 10-40% over rule based model.
- **Regression**
  Shipped 12 *Fast Tree* regression models to predict the customer life time value in 12 Microsoft product divisions.
  Used feature correlation/feature importance to select proper features.
  Designed a metric combining L1/L2/Pearson Correlation/Spearman Correction to select the best model.
- **Causal Effect Analysis**
  Analyzed the impact of Microsoft reward program/family program on the total revenue.
  Used *Propensity Score* to remove bias when selecting counterfactual.
  Solved the problem to compare two groups of users when it is impossible to run A/B test.
  Published one paper and submitted one patent.
- **Deep Learning**
  Rebuilt *feed forward network/RNN (LSTM)* to predict users' spending.
  Designed *parameter sweep* modules to tune the hyperparameters.
  Leveraged *Autoencoder* to reduce the feature dimension.
- **Time Series Prediction**
  Used *STL/Holt-Winters/ARIMA* to predict a user's spending in the next year based on her spending in previous 2 years.
- **Clustering**
  Divided users into clusters and then used the cluster id as features to predict the user's spending.

Jarvis Engineer Team

- **System Implementation**
  Designed and deployed APIs to collect data from different sources about a commercial customer and then show the information in a unified interface to inside sellers.
- **NLP**
  Built a natural language generation (NLG) module to provide a brief summary of a customer.

Program Languages	Java, Python, Scope, C/C++, C#, R, javascript

Honors and Awards

Microsoft Special Bonus Award (only one in MKG data science team)
Microsoft 2018

Graduate Research Assistant Award (highest honor for graduate student)
The Pennsylvania State University 2015

AT&T Graduate Fellowship (only one each year)
AT&T 2015

Student Travel Grant
IEEE INFOCOM 2015, ACM MobiHoc 2014, IEEE ICDCS 2013

Publications

Conference Papers

1. **Wenjie Hu** and Guohong Cao, "Energy-Aware CPU Frequency Scaling for Mobile Video Streaming", *in Proceedings of the 37th IEEE International Conference on Distributed Computing Systems (ICDCS)*, 2017.
2. Yi Yang, Yeli Geng, Li Qiu, **Wenjie Hu** and Guohong Cao, "Context-Aware Task Offloading for Wearable Devices", *in Proceedings of the 26th International Conference on Computer Communications and Networks (ICCCN)*, 2017.
3. Yibo Wu, Yi Wang, **Wenjie Hu** and Guohong Cao, "Resource-Aware Photo Crowdsourcing Through Disruption Tolerant Networks", *in Proceedings of the 36th IEEE International Conference on Distributed Computing Systems (ICDCS)*, 2016. Acceptance Ratio: 17.6%.
4. **Wenjie Hu** and Guohong Cao, "Energy-Aware Video Streaming on Smartphones", *in Proceedings of the 34th IEEE International Conference on Computer Communications (INFOCOM)*, 2015. Acceptance Ratio: 19.3%.
5. **Wenjie Hu** and Chiu Ngo, "LMAC: LTE-assisted MAC Protocol to Reduce Delay for Vehicle to Vehicle Communications", *in IEEE International Conference on Communications (ICC)*, 2015.
6. Yeli Geng, **Wenjie Hu**, Yi Yang, Wei Gao and Guohong Cao, "Energy-Efficient Computation Offloading in Cellular Networks", *in Proceedings of the 23rd IEEE International Conference on Network Protocols (ICNP)*, 2015. Acceptance Ratio: 20.3%.
7. Xiao Sun, Zongqing Lu, **Wenjie Hu** and Guohong Cao, "SymDetector: Detecting Sound-Related Respiratory Symptoms Using Smartphones", *in Proceedings of the ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, 2015. Acceptance Ratio: 23.6%.
8. **Wenjie Hu** and Guohong Cao, "Quality-Aware Traffic Offloading in Wireless Networks", *in Proceedings of the 15th ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2014. Acceptance Ratio: 18.9%.
9. Yi Wang, **Wenjie Hu**, Yibo Wu and Guohong Cao, "SmartPhoto: A Resource-Aware Crowdsourcing Approach for Image Sensing with Smartphones", *in Proceedings of the 15th ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2014. Acceptance Ratio: 18.9%.
10. **Wenjie Hu** and Guohong Cao, "Energy Optimization Through Traffic Aggregation in Wireless Networks", *in Proceedings of the 33rd IEEE International Conference on Computer Communications (INFOCOM)*, 2014. Acceptance Ratio: 19.4%.
11. **Wenjie Hu**, Guohong Cao, Srikanth V. Krishanamurthy, and Prasant Mohapatra, "Mobility-Assisted Energy-Aware User Contact Detection in Mobile Social Networks", *in Proceedings of the 33rd IEEE International Conference on Distributed Computing Systems (ICDCS)*, 2013. Acceptance Ratio: 13%.

12. Yong Cui, **Wenjie Hu**, Sasu Tarkoma, and Antti Yla-Jaaski, "Probabilistic Routing for Multiple Flows in Wireless Multi-hop Networks", *in Proceedings of the 34th IEEE Conference on Local Computer Networks (LCN)*, 2009.

Journal Papers

13. Yi Yang, **Wenjie Hu** and Guohong Cao, "Energy-Aware CPU Frequency Scaling for Mobile Video Streaming", *IEEE Transactions on Mobile Computing (TMC)*, 2018.
14. Shan Yang, Jay Pillai, **Wenjie Hu** and Bo Moon, "Estimating Lift In Total Revenue From Microsoft Rewards", *MSJAR*, 2018.
15. **Wenjie Hu** and Guohong Cao, "Quality-Aware Traffic Offloading in Wireless Networks", *IEEE Transactions on Mobile Computing (TMC)*, 2017.
16. Yibo Wu, Yi Wang, **Wenjie Hu** and Guohong Cao, "SmartPhoto: A Resource-Aware Crowdsourcing Approach for Image Sensing with Smartphones", *IEEE Transactions on Mobile Computing (TMC)*, 2016.
17. Bo Zhao, **Wenjie Hu**, Qiang Zheng, and Guohong Cao, "Energy-Aware Web Browsing on Smartphones", *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 2015.
18. Yong Cui, **Wenjie Hu**, Hongyi Wang, "Probabilistic Multi-path Routing for Multimedia over Wireless Mesh Networks", *Ad Hoc & Sensor Wireless Networks(AHWSN)*, 2010.
19. Wei Gao, **Wenjie Hu**, and Guohong Cao, "Interest-Based Data Dissemination in Opportunistic Mobile Networks: Design, Implementation and Evaluation", *Opportunistic Mobile Social Networks*, 2014.

Patent

20. Shan Yang, Jay Pillai, **Wenjie Hu** and Bo Moon, "Computing Resource-efficient, machine learning-based techniques for measuring an effect of participation in an activity", submitted.